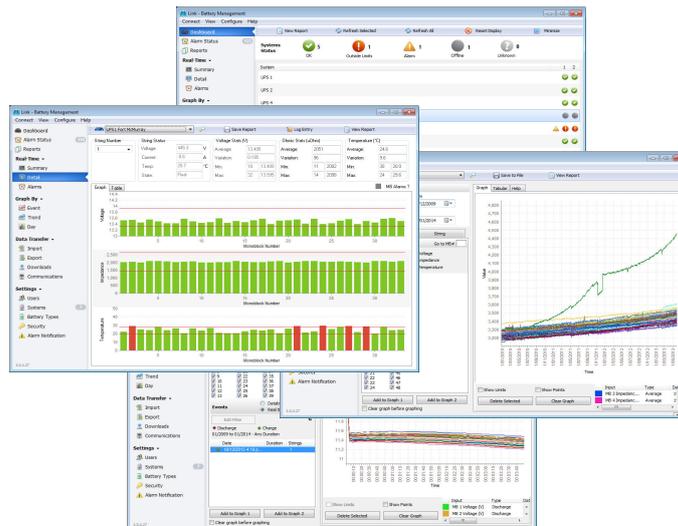


Link 3 Battery Management Software User Guide



Contact your supplier or support@powershield.com for technical support.
This User Guide is also available in different languages at www.powershield.com
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Welcome

Welcome to the Link Battery Management Software User Guide.

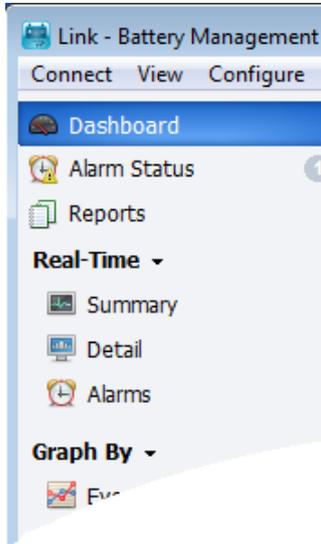
This guide shows you how to perform basic operations and provides some background information to those operations:

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This User Guide is to assist with the use of Link software and is not intended as a description for battery management. Need assistance with a battery management plan? Talk to us at www.PowerShield.com

Navigation

Link consists of a number of pages, each providing different functionality. These pages are shown in the tool bar in the left pane, simply click an icon to select each page. Within a page there are a range of tabs, buttons and drop down selection lists, along with the battery data being displayed. In some places you will need to make a selection or enter information so Link can display the battery information you require.



TIP 1: See the **General Settings** and **Admin Utility** items in the **Help** menu for added functions like backing up your Link database and configuring email alarm alerts.

TIP 2: Some navigation & functions vary slightly between Standard Edition and Service Edition. This User Guide generally refers to behaviour of the Standard Edition. See Installing Link Software section and Link Service Edition section for more information.

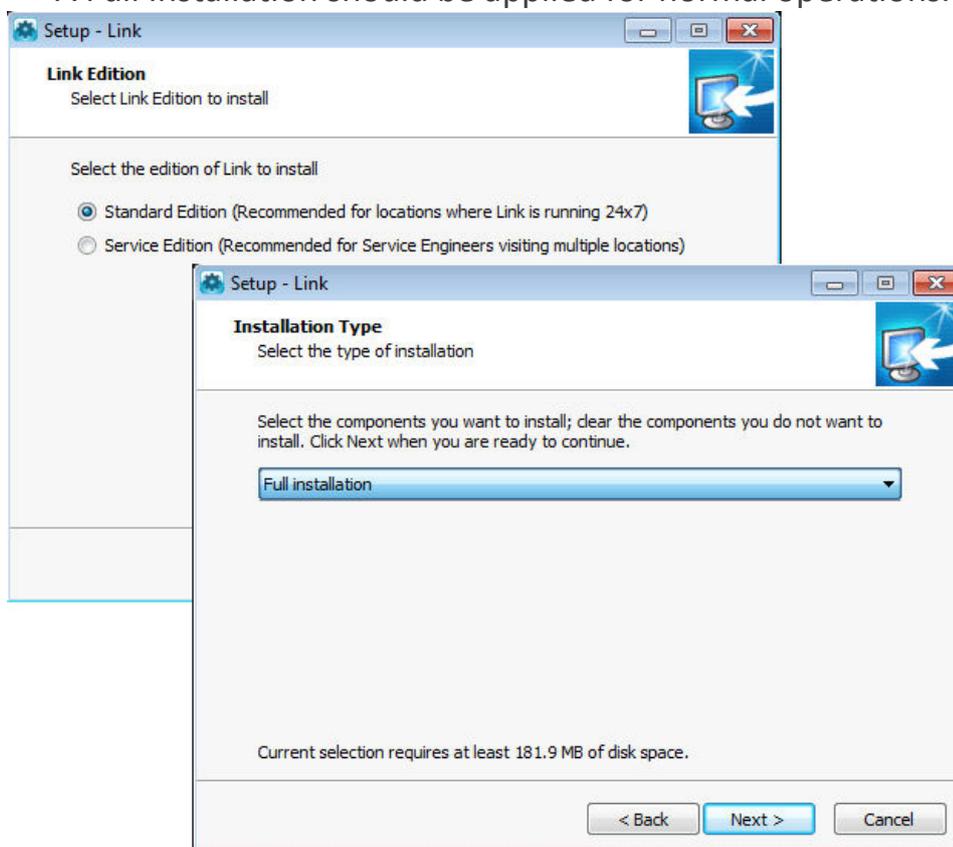
Installing Link Software

Recommended PC requirements

- 1GHz or better 32-bit or 64-bit processor with 2GB RAM (32 bit) or 4GB RAM (64 bit).
- 160GB hard drive with 20GB available space.
- 1024 x 768 or 1366 x 768 screen resolution.
- Operating system – Windows XP Pro or later.

To Set up Link

1. Run **Link Setup.exe** from the CD supplied with your PowerShield system.
 2. Follow the installation wizard steps to match your requirements.
- A Full Installation should be applied for normal operations.



TIP 1: If you get a User Account Control pop up screen (e.g. Windows 7/Vista users) click **Yes** to continue

TIP 2: If you don't have the system CD, Link software is also available for download at www.powershield.com. Contact PowerShield for further assistance.

TIP 3: Install the Standard Edition for fixed PC's with Link running 24/7. Install the Service Edition for laptops with temporary activity and connections. Talk to PowerShield if you need to change from one edition to another.

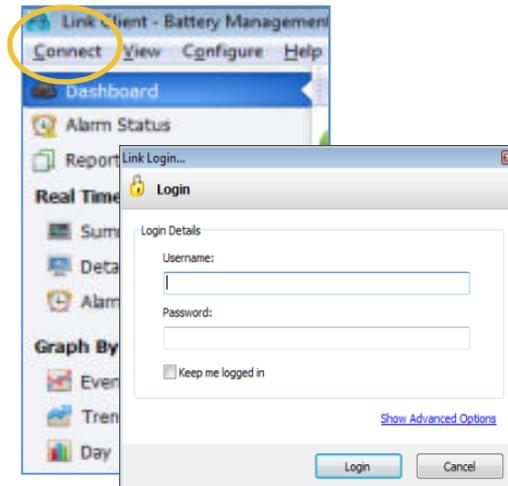
Logging In for the First Time

1. From the **Connect** menu, select Login.
2. The default login details are:

Username: admin

Password: ADMIN

3. Click **Login** to proceed.



TIP 1: Username and password are both case sensitive. You can add additional users and set passwords from the **SETTINGS/USERS** section.

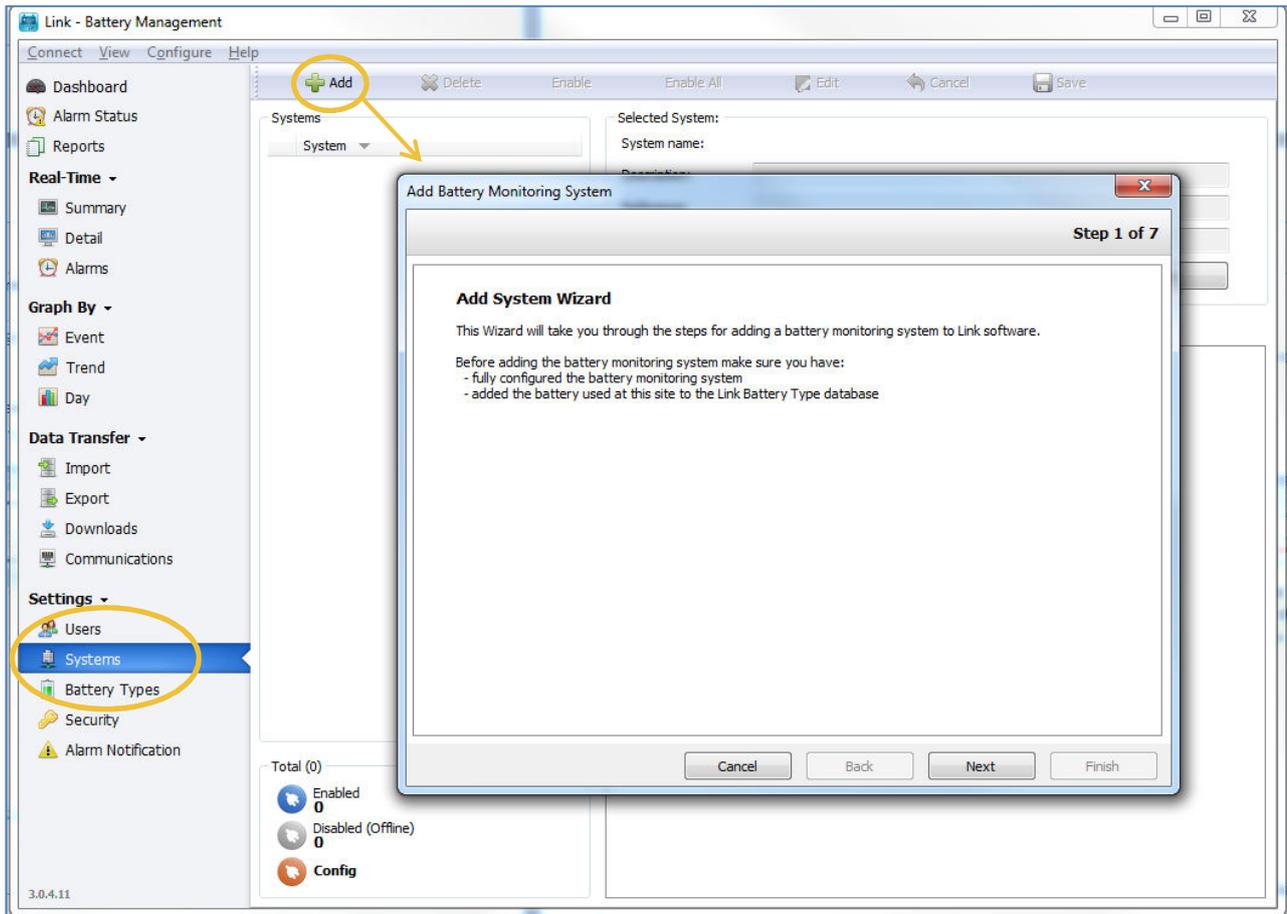
TIP 2: When you login, you are only accessing Link software, you are not logging in to a particular battery monitor.

Adding a New Battery Monitor System

You need to 'add' your battery monitor system to Link before you can view it. Each subsequent battery and battery monitoring system needs to be added to Link in the same manner.

1. Go to the **SETTINGS/SYSTEMS** page.
2. Click the **Add** button.

The **Add System Wizard** will guide you through the steps required, simply follow the prompts.



TIP 1: The battery monitor should be fully configured using PowerShield Config software before it is added to Link.

TIP 2: Once a system is added to Link but you want to change some monitor configuration settings, you can launch Config software directly from this page.

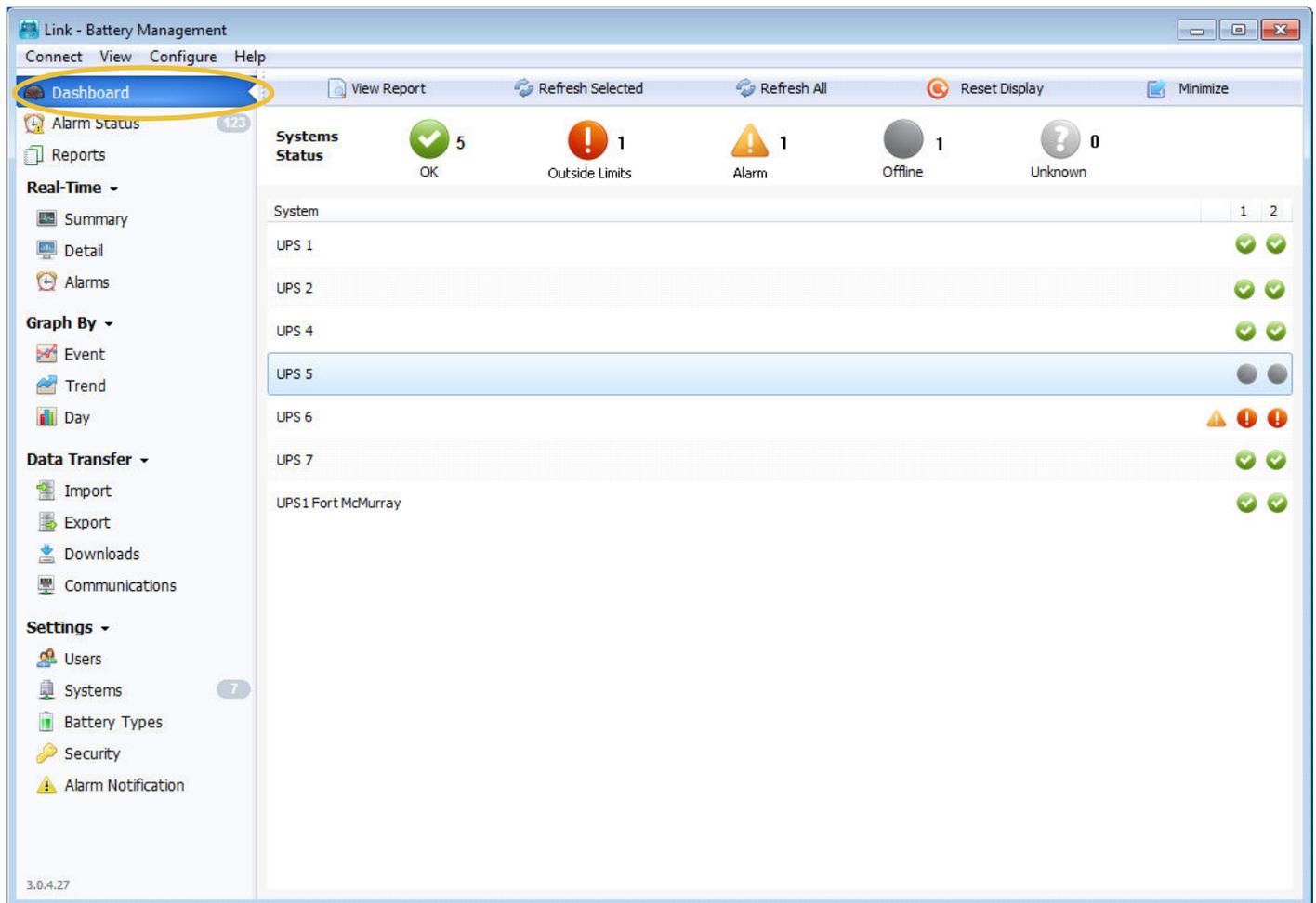
TIP 3: Earlier versions of Link used the terms 'Site' and 'Sitename' to identify an individual battery monitoring system. Link now uses the term '**System**'.

Viewing All Your Batteries

The **DASHBOARD** page shows the current status of all battery systems and displays any alarms that need attention.

Click on the various icons for a particular system to:

- View real time data for the individual batteries in a string.
- View alarm information for the system.



TIP 1: The red and green **DASHBOARD** indicators show present status with respect to any alarm limits set.

TIP 2: Clicking on the green or red indicator for a particular string will take you direct to the **REAL-TIME/DETAIL** for that string.

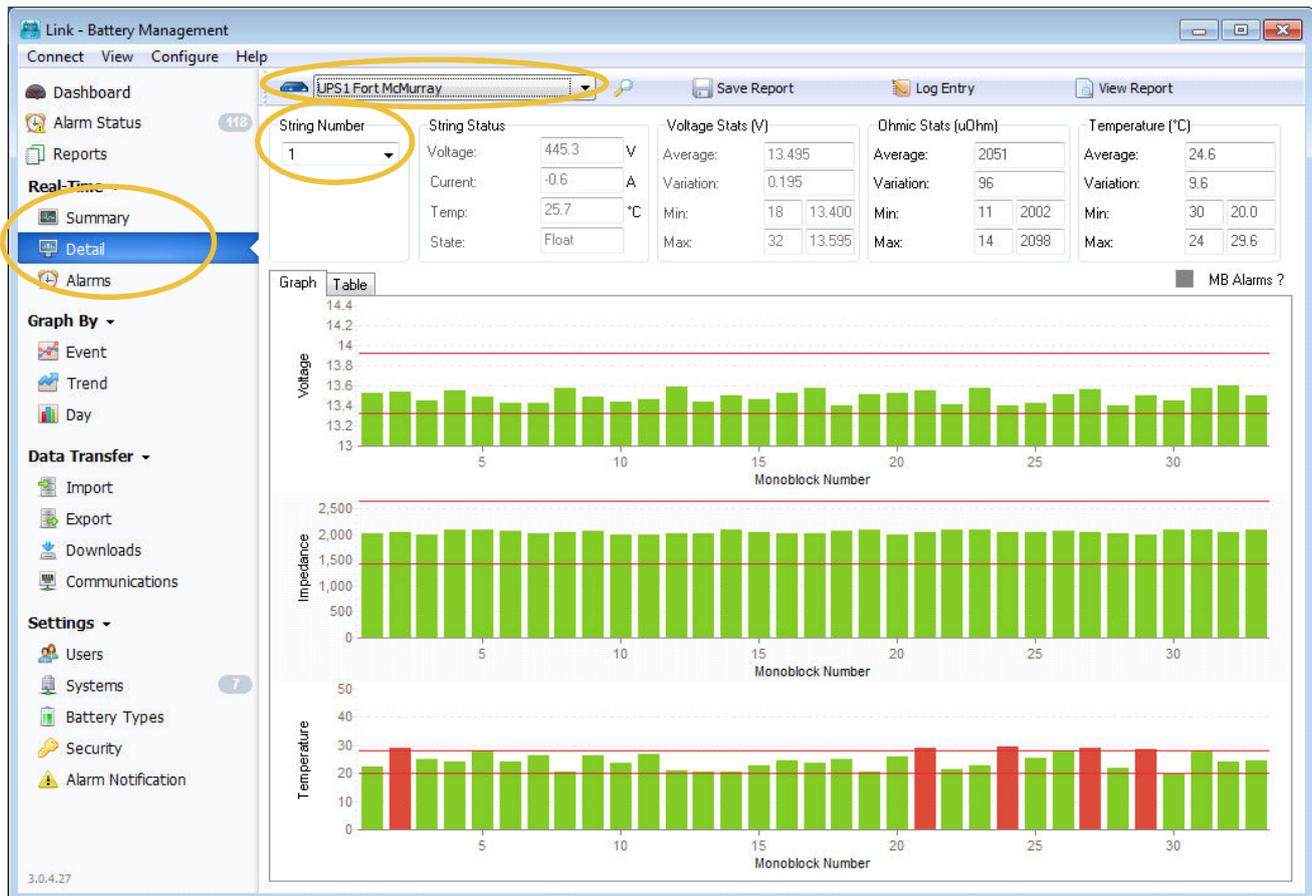
TIP 3: Clicking on the orange alarm indicator for a particular system will take you direct to the **REAL-TIME/ALARMS** for that system.

TIP 4: The Service Edition will only show systems that are currently Enabled

Viewing an Individual Battery

This page provides you with latest measurements for individual battery voltage, impedance and temperature. Note that Link automatically displays the parameters that the battery monitor is configured with – not all systems provide all parameters.

1. Go to the REAL TIME/DETAIL page.
2. Select the **System** name to view from the drop down list.
3. Select the **String Number** from the drop down list for the battery you wish to view.



You can also:

- View the actual measurements (**Table** tab).
- Save the measurements to a report in either PDF or CSV format (**Save Report**)

TIP 1: Link is designed for connection to lots of battery systems - remember to select the system you want to view.

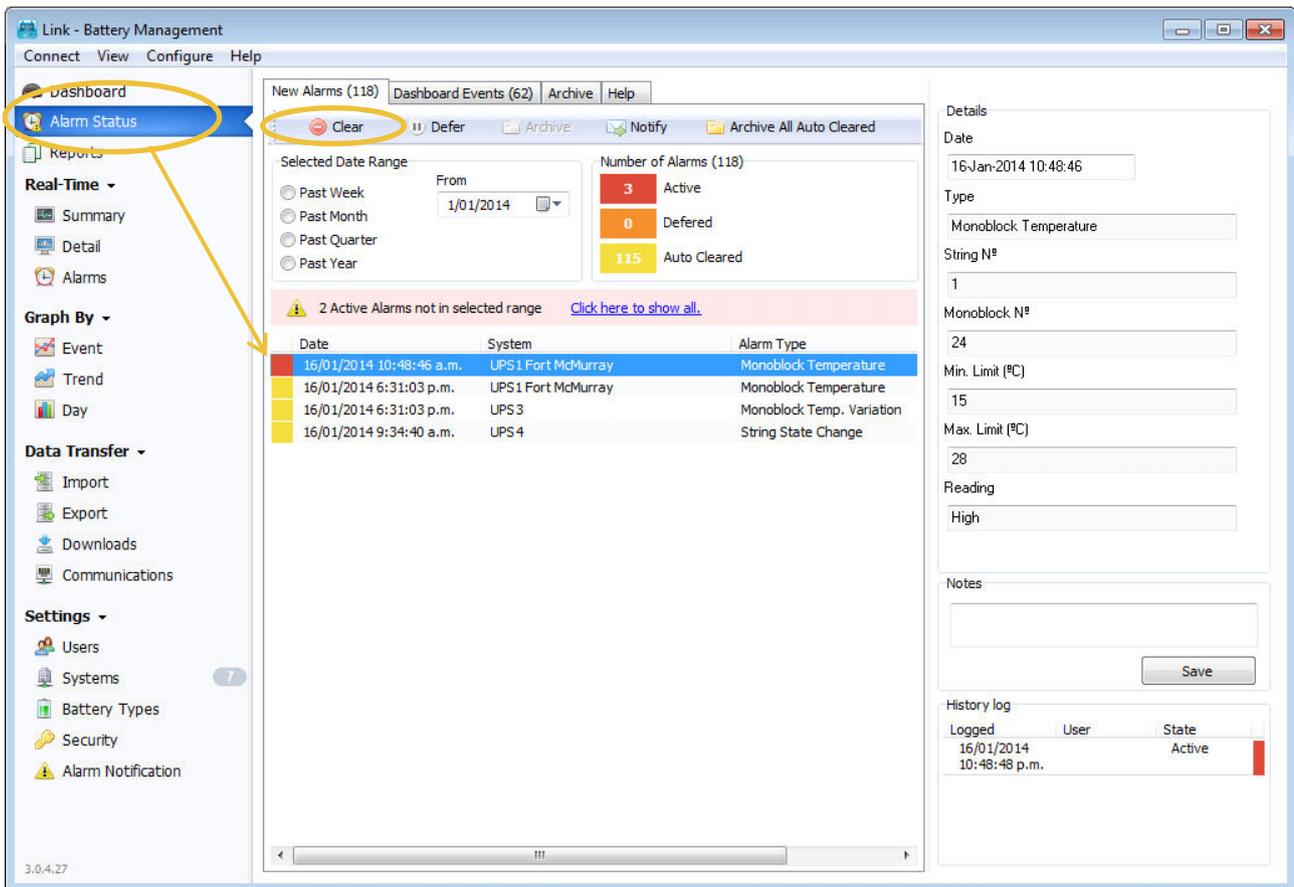
TIP 2: The battery voltages are shown live and updated at the battery monitor every 4 seconds. Impedance is updated once per day or as per operator settings.

TIP 3: You can also get directly to this screen by clicking on the green or red indicator for a particular string at the **DASHBOARD**.

Clearing an Alarm

This page provides you with details of any current alarms. Note that Link automatically clears Battery alarms to provide better total response times. See the separate Auto-Clear Alarms section at end of this guide for more detail.

1. Go to the **ALARM STATUS** page.
2. Select the alarm to be cleared from the list of Active alarms in the **New Alarms** tab.
3. Click the **Clear** button.



TIP 1: You can also clear an alarm by simply right clicking on it in the list and selecting **Clear**.

TIP 2: Link will Auto-Clear Battery alarms at the battery monitor. System alarms are not Auto-Cleared and must be cleared by an operator.

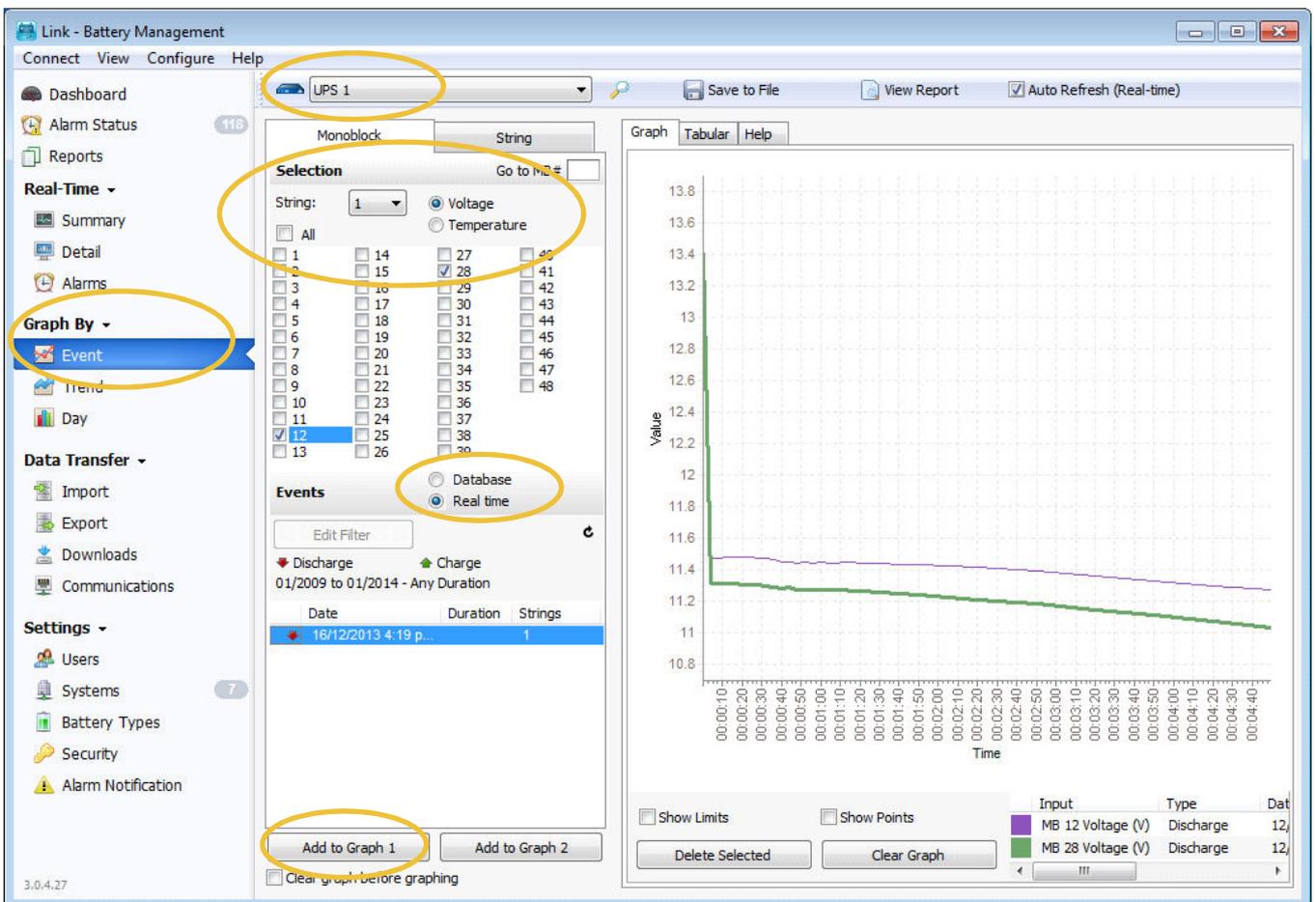
TIP 3: The specific detail for a selected alarm and its history can be seen in the areas at the right of the page. Refer to the Help tab for more detail about alarm states.

TIP 4: You can also view old alarms at the Archive tab

Viewing a Live Discharge

Link allows you to watch your discharge curve as it happens.

1. Go to the **GRAPH BY/EVENT** page.
2. Select the **System** name to view from the drop down list.
3. Select the other parameters you wish to view – string number, battery number, measurement type – Voltage or Temperature.
4. Click the **Real Time** selection box.
5. Select the event date you wish to view from the events list.
6. Click **Add to Graph 1**.



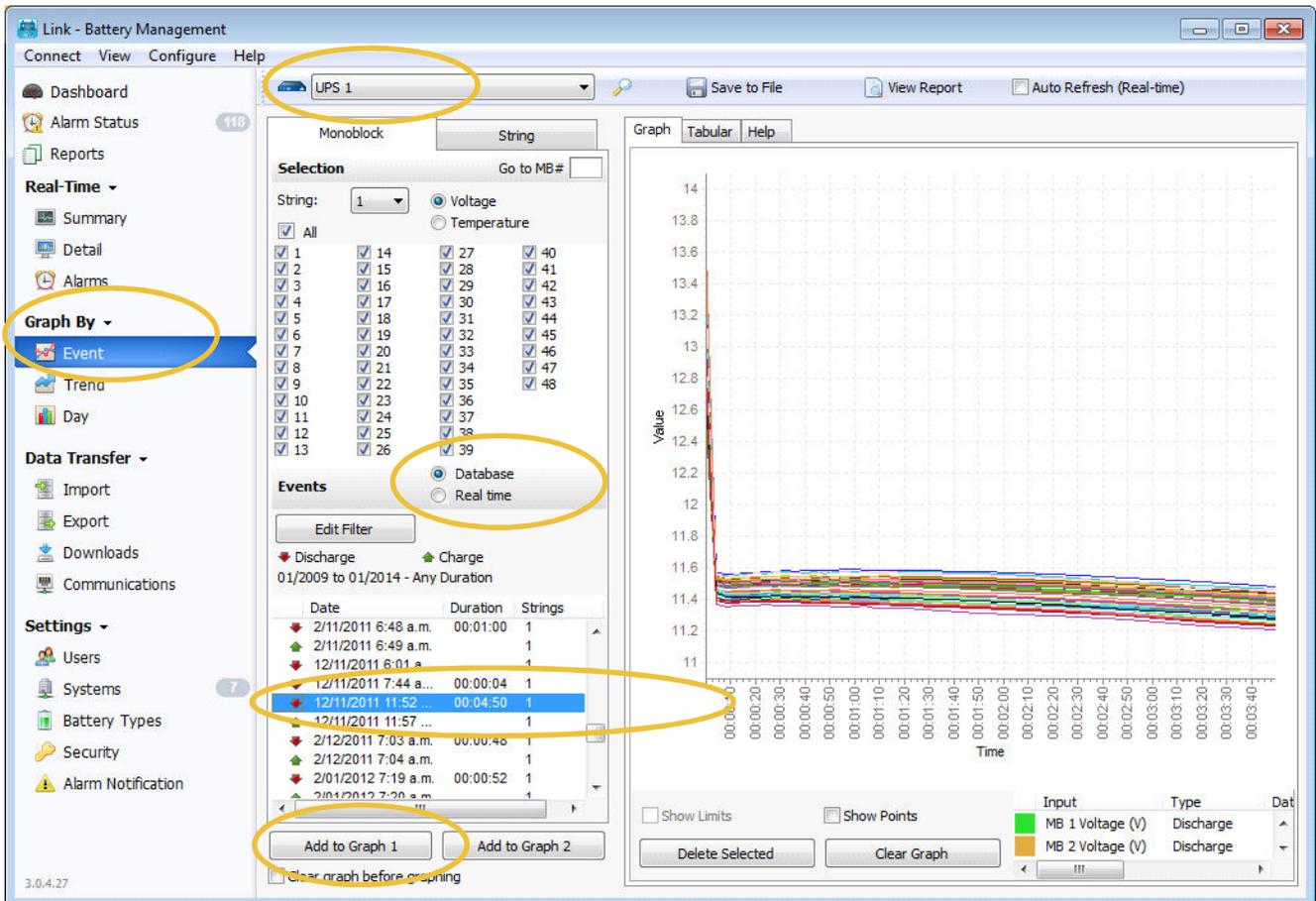
TIP 1: To view a discharge event live, you must be connected to the relevant battery monitor and have it Enabled in Link.

TIP 2: You can graph multiple items or events on the same graph axis. You can graph another parameter on the second graph axis by clicking the **Add to Graph 2** button.

TIP 3: Click and drag within the graph axis to zoom. Left click to pan.

Graphing a Recorded Discharge

1. Go to the **GRAPH BY/EVENT** page.
2. Select the **System** name to view from the drop down list.
3. Select the other parameters you wish to view – string number, battery number, measurement type – Voltage or Temperature.
4. Click the **Database** selection box.
5. Select the event date you wish to view from the events list.
6. Click **Add To Graph 1**.

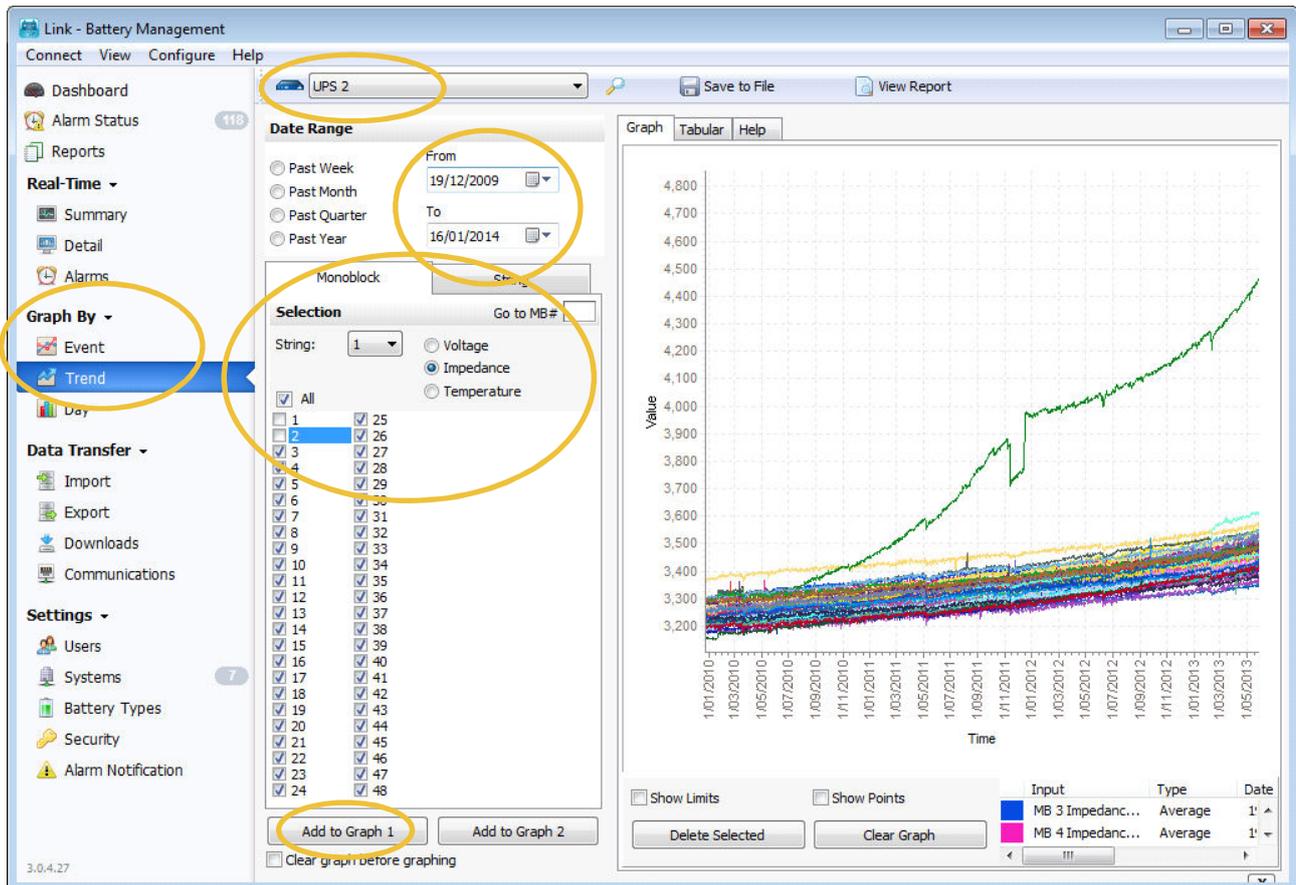


TIP 1: You can also get to this page easily by right clicking on a particular battery voltage bar in the **REAL-TIME/DETAIL** screen and selecting **Last Discharge**.

TIP 2: You can view a recorded discharge 'offline' while not connected to a monitor. However the discharge data set **MUST** have been transferred from the monitor to the Link database [an automatic process at end of discharge] before disconnection. If you cannot find the event in the event list or are unsure, you can view and 'force' this transfer at the **DATA TRANSFER/DOWNLOADS** page if still connected to the monitor.

Analysing the Life Trends of Your Batteries

1. Go to the **GRAPH BY/TREND** page.
2. Select the **System** name to view from the drop down list.
3. Select the date range you wish to analyse.
4. Select the other parameters you wish to view – string number, battery number, measurement type.
5. Click **Add To Graph 1**.



TIP 1: You can also get to this page easily by right clicking on a particular battery voltage bar in the **REAL-TIME/DETAIL** screen and selecting **Last 3 Months**.

TIP 2: You can print and save the graph by right clicking on the graph and making the desired selection.

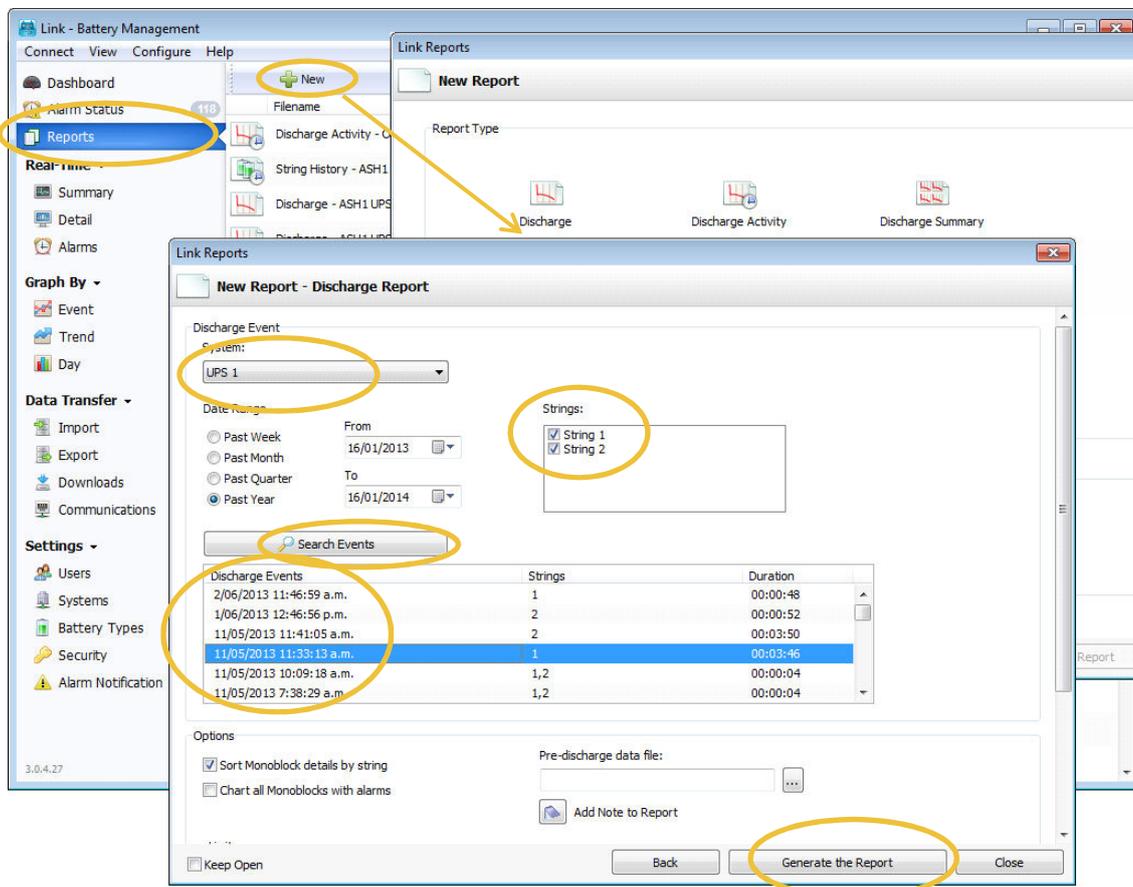
TIP 3: Click on an item graph line to highlight and determine item number in graph key.

TIP 4: You can view the measurements from a particular day in time at the **GRAPH BY/DAY** page.

Creating a Discharge Report

The data for all reports originates at the battery monitor. Ensure sufficient time is allowed for data to be transferred to Link database before creating a report.

1. Go to the **REPORTS** page.
2. Click the **New** button to generate a new report and select **Discharge** from the list of Report Types.
3. Select the **System** name you want to report on from the drop down list on the **Discharge Report** page.
4. Select the relevant string(s) and click **Search Events**
5. Select the event date you wish to view from the events list.
6. Click **Generate the Report** to proceed.

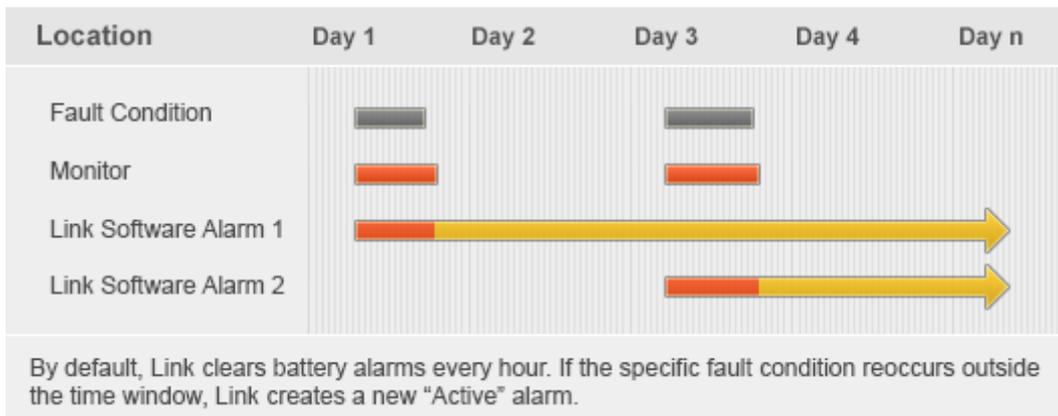
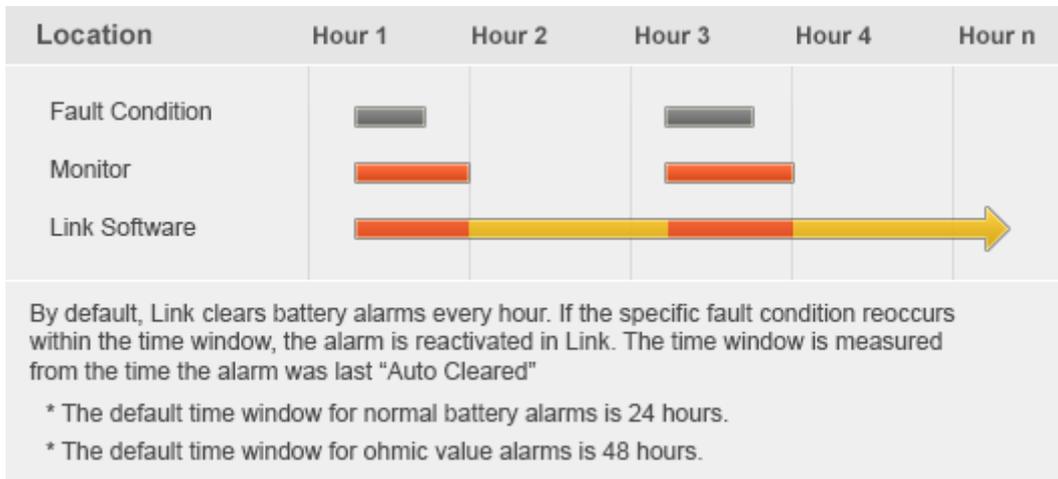
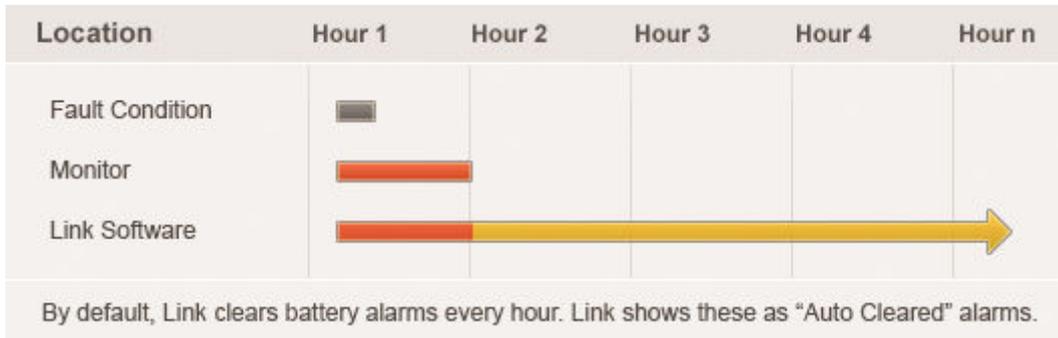


TIP 1: You can generate a Discharge Report 'offline' while not connected to a monitor. However the discharge data set MUST have been transferred from the monitor to the Link database [an automatic process at end of discharge] before disconnection. If you cannot find the event in the event list or are unsure, you can view and 'force' this transfer at the **DATA TRANSFER/DOWNLOADS** page if still connected to the monitor.

TIP 2: The report will use the alarm limits set on the monitor, or you can adjust these when creating the report.

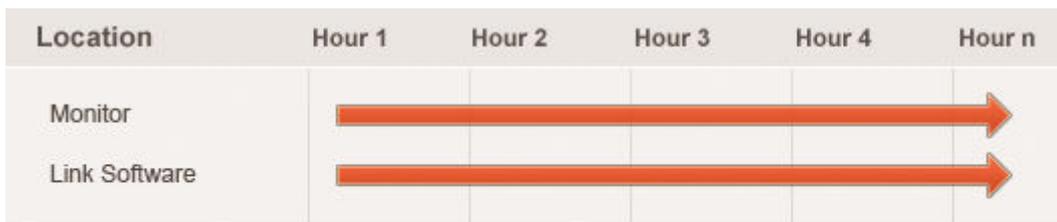
Link Alarm Auto-Clearing Behaviour

Link automatically clears Battery alarms to provide better total response times. Battery alarms relate directly to the battery system and its environment. System alarms [non automatically cleared] relate to proper operation of the battery monitor and must be cleared manually. Auto-clear functions only occur within Standard Edition.





By default, Link clears battery alarms every hour. If the same type of fault condition occurs for another reason, i.e. another battery, Link creates a new "Active" alarm.



Once they occur, system alarms remain in Link as "Active" alarms and remain present on the monitor until the user manually clears the alarm.



String events that occur are immediately cleared from the monitor by Link. The alarm is recorded in Link as being "Auto Cleared". These string alarms remain "Auto Cleared" until they are archived by the user.



Link alarms are specific to the Link software and are not present on the monitor. These alarms remain in Link as "Active" and remain present in Link until the user manually clears the alarm.

TIP 1: Auto-cleared alarms can be archived manually by clicking the **Archive All Auto-Cleared** button. Link will automatically archive auto-cleared alarms that have been in that state for more than a week.

TIP 2: You can adjust the time window at the **Admin Utility** item in the **Help** menu.

Link Service Edition

Link offers two different operating formats - Standard Edition for fixed PC's with Link running 24/7, Service Edition for laptops with temporary activity and connections. Some navigation & functions vary slightly between the two editions. This User Guide generally refers to behaviour of the Standard Edition; however the major functional differences are highlighted here.

Link Service Edition:

- Starts in the **SETTING/SYSTEMS** page.
- Only shows Enabled systems on the **DASHBOARD**.
- Allows creation of multiple systems with same communication parameters.
- Has automatic date & time synchronisation disabled.
- Has the **DASHBOARD** poll disabled. A status update must be 'forced' by the operator.
- Has no alarm auto-clearing functionality.
- Has automatic memory downloads disabled for trend data. Memory downloads must be 'forced' by the operator, and an option is given to delete/not delete from monitor after download.
- Has automatic memory downloads delayed for event data. A warning panel will appear advising that downloads will start soon. Memory downloads can be 'forced' by the operator, and an option is given to delete/not delete from monitor after download.
- Disables communication with all monitor systems when LinkClient is closed.
- LinkServer is in sleep mode when LinkClient is not running.

TIP 1: The Service Edition is recommended for service technicians making temporary connections. Full functionality is available, but automated background processes are disabled or delayed to provide best speed and prevent unwanted or conflicting actions.